

**CLAIMS**

1. A method for monitoring a polynucleotide amplification reaction comprising the steps of:

- (i) carrying out a reaction for the amplification of a target polynucleotide;
- (ii) either during or after the amplification reaction contacting the amplified product with a molecule that binds to or interacts with a polynucleotide, the molecule being located in a spatially defined position or being determined via a non-linear or non-fluorescent technique; and
- (iii) detecting the interaction between the amplified product and the molecule by measuring changes in applied radiation.

2. A method according to claim 1, wherein the molecule is immobilised to a support material.

3. A method according to claim 1 or claim 2, wherein the molecule is a polymerase enzyme.

4. A method according to claim 1 or claim 2, wherein the molecule is a polynucleotide, at least a portion of which is complementary to a region on the amplified product.

5. A method according to claim 4, wherein the molecule acts as a primer for the amplification reaction.

6. A method according to any preceding claim, wherein detection in step (iii) is carried out by applying surface electromagnetic waves and monitoring changes in the waves.

7. A method according to claim 6, wherein detection is carried out by measuring changes in surface plasmon resonance.

8. Apparatus for monitoring a polynucleotide amplification reaction, comprising a support material having a plurality of molecules immobilised thereon, the molecules having the ability to bind to or interact with a polynucleotide, and means for detecting changes in applied radiation.